

WHAT IS CLAIMED IS:

1. A semiconductor wafer comprising
a silicon wafer which is doped with hydrogen, and
said silicon wafer having a hydrogen concentration which is
less than 5×10^{16} atcm⁻³ and greater than 1×10^{12} atcm⁻³.

2. A method for producing a silicon semiconductor
wafer comprising
pulling a silicon single crystal from a melt, in
the presence of hydrogen, using the Czochralski method,
wherein the silicon single crystal is pulled under a hydrogen
partial pressure of less than 3 mbar; and
separating the silicon semiconductor wafer from the
silicon single crystal.

3. The method as claimed in claim 2, comprising
doping the silicon single crystal with nitrogen and
producing a nitrogen concentration of 5×10^{12} atcm⁻³ to 5×10^{15}
atcm⁻³.

4. The method as claimed in claim 2, comprising

placing a cooled heat shield around the silicon single crystal; and

cooling the silicon single crystal with the heat shield, for a period of time within which the silicon single crystal cools from a temperature of 1050°C to a temperature of 900°C in less than 120 min.

5. The method as claimed in claim 2, comprising subjecting the semiconductor wafer to a heat treatment in an atmosphere which contains less than 3% by volume of hydrogen and the balance being argon.

6. The method as claimed in claim 2, comprising subjecting the semiconductor wafer to an oxidation treatment.